

## ABSTRACT

A cubic convolution interpolating apparatus and method for performing interpolation by optimizing a parameter which determines the interpolation coefficients according to the local property of an image signal, which can minimize the quantity of information loss in a scaled or resampled image signal. The cubic convolution interpolating apparatus includes an image signal divider dividing an image signal into a plurality of subblocks, and a block generating parameters which determine cubic convolution interpolation coefficients in units of subblocks, and perform cubic convolution interpolation. The cubic convolution interpolating block includes a forward scaling processor sampling a cubic convolution interpolated continuous function of original image data transmitted from the divider using a first scaling factor and scaling the original image data, a backward scaling processor sampling a backward cubic convolution interpolated continuous function of the scaled data output from the forward scaling processor using a second scaling factor and restoring the scaled data into the original image data, and a parameter optimizer optimizing the parameter using the original image data and the data restored into the original image data output from the backward scaling processor, and transferring the optimized parameter to the forward scaling processor and the backward scaling processor, respectively. Therefore, even if an image includes various spatial frequency components, the quantity of lost information due to a change in the local property of the spatial frequencies can be minimized.